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Pacific Southwest Forest and Range
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EVALUATING ECOLOGICAL TRENDS ON CAMPGROUNDS

By

Arthur W. Magill, Forester

ABSTRACT: Studies of ecological trends have been started to assess the impact of recreational use on campground soils and vegetation. Data recorded at the time of plot establishment show some differences that may be related to intensity of use, but the significance of these differences cannot be determined until plots are remeasured.

In 1961, the Pacific Southwest Station started studies of campground environments on three National Forests in California. In basically coniferous forest types, 37 trend plots were established on heavily used campgrounds and 19 on lightly used or unused (control) sites. Ecological trends will be appraised in terms of periodic changes in: the numbers of residual trees by size classes and species, the distribution and crown area of shrubs and forbs, the depth and area covered by deadwood and litter, and the percent of intercamp screening.[1/] Remeasurement and analyses will be carried on at 3- to 5-year intervals, but some insight into the influence of concentrated use has shown up in measurements at the time of plot establishment.

More advance growth (trees up to 5.0 inches d.b.h) was present where recreational impact has been restricted (table 1). Moreover, 5 of 8 tree species were less numerous on heavily used areas than on lightly used or unused ones. In addition, forbs and shrubs, litter cover and depth, and intercamp screening seemed to reflect an unfavorable influence from heavy recreational use.

1/ "Screening cover is defined as the percent of the surrounding terrain which is obscured, or nearly so, when viewed parallel to the prevailing ground surface." (Nord, Eamor C., and Magill, Arthur W. A device for gaging campground screening cover. Jour. Forestry. In press.)

Table 1.--Environmental characteristics of campgrounds on three California National Forests, by degree of recreational use

Item	Heavy use	Light to no use
Number of trees/acre by size class		
Less than 1.0 inch d.b.h.[1/]	130	402
1.0 - 4.9 inches d.b.h.	147	369
5.0 - 10.9 inches d.b.h	79	82
11.0 - 20.9 inches d.b.h.	47	15
21.0 inches d.b.h. and over	23	0
Number of trees/acre by tree species		
Abies concolor	352	897
Abies magnifica	22	0
Libocedrus decurrens	45	180
Pinus contorta	136	381
Pinus jeffreyi	110	147
Pinus lambertiana	42	55
Pinus ponderosa	52	198
Quercus kelloggii	55	55
Percent of area covered by forb and shrub crowns	6.4	16.6
Number of shrubs/acre	467	1,250
Percent of area covered by:		
Litter	57.7	90.4
Deadwood	0.8	4.8
Litter depth, inches	0.58	1.62
Percent screening at 50-foot radius	25.0	50.9
Percent composition of screening:		
Tree boles	71.1	46.4
Tree foliage	13.0	43.2
Shrubs	15.0	9.3
Other	0.9	1.1

1/ Includes trees more than 5 years old and more than 6 inches in height but less than 1 inch d.b.h.

However, certain limitations are inherent in the data. Differences between the environmental components shown by the data cannot be attributed solely to the intensity of recreational use. For example, there is no way of knowing how much deterioration has resulted from campground construction or from biological influences. After the first remeasurement, it will be possible to compare the data by intensity of use and sampling dates. In addition, data can be analyzed by geographic locations, soil series, and vegetative types, providing much more meaningful results.

Future ecological trend plots will be established in some campgrounds before construction and use. Thus, vegetative and soil conditions can be assessed to determine the changes attributable to construction and recreational impact.

U. S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE
PACIFIC SOUTHWEST
FOREST AND RANGE EXPERIMENT STATION
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